UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,779	11/20/2001	Robert Raymond Miller ll	2001-0067	2039

83811 7590 09/22/2009

AT & T LEGAL DEPARTMENT - WT
PATENT DOCKETING
ROOM 2A-207, ONE AT& T WAY
BEDMINSTER, NJ 07921

EXAMINER	
IQBAL, KHAWAR	

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
09/22/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/989,779	MILLER LL ET AL.	
	Examiner	Art Unit	
	KHAWAR IQBAL	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 15-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6-18-09 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claims 1, 4, 8, 9, 11, 13, 15-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US005787122A) in view of Ohashi (EP 0740430 A2).

Regarding claim 1, Suzuki discloses a reception system where an amplifier 73, a demodulator 74, a deinterleave circuit 75 and a decoder 76 are coupled to one of a plurality of antennas 71a-m via switch 72s, which reads on the claimed "first and second antennas connected to RF processing circuitry by an RF switch", where each time the antenna switcher 72 receives burst data, the antenna switches the antenna under control of the communication control unit 78 (see column 9, lines 13-20 and figure 10), which reads on the claimed "an RF switch control in communication with said RF switch, said RF switch control for switching between said first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts," wherein the system disclosed by Suzuki is a TDMA system (see column 6, lines 12-19) so all transmissions and receptions are according to a predefined schedule of a sequence of scheduled packet bursts. Suzuki fails to expressly disclose that first signal burst and second signal burst comprise identical packets of a common message.

In a similar field of endeavor, Ohashi et al discloses that when a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the same data, and the same data is re-transmitted (see page 10, line 57 - page 11, line 2), which reads on the claimed first signal burst and second signal burst comprise identical packets of a common message. When a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the same data, and the same data is re- transmitted (see Ohashi et al

page 10, line 57 - page 11, line 2) and simultaneously, the receiving error count is increased by 1 and the receiving antenna is switched (see Ohashi et al page 11, lines 39-47), so in this case the same data would be received by two different antennas as claimed. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Ohashi et al to include the above retransmission of the same data in order to prevent the loss of data.

Regarding claim 4, Suzuki discloses that an encoded signal dispersed into a plurality of symbols interleaved over a plurality of burst data (see column 8, line 62 column 9, line 12), so the burst data are related as claimed. Each time the antenna switcher 72 receives burst data, the antenna switches the antenna under control of the communication control unit 78 (see column 9, lines 13-20 and figure 10), which reads on the claimed "the antennas are switched so that each antenna receives a related packet burst".

Regarding claim 8, Suzuki discloses a reception system that receives an encoded signal dispersed into a plurality of symbols interleaved over a plurality of burst data (see column 8, line 62 - column 9, line 12), where each time the antenna switcher 72 receives burst data, the antenna switches the antenna under control of the communication control unit 78 (see column 9, lines 13-20 and figure 10), which reads on the claimed "receiving each of the packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule," wherein the system disclosed by Suzuki is a TDMA system (see column 6, lines 12-19) so all transmissions and receptions are according to a predefined schedule of a sequence of scheduled packet

bursts. In the case where the antennas are selected in a predetermined sequential order, the limitation of, "where said predefined schedule is used to select one of said plurality of antennas for receiving each of said packet bursts," is met. If a signal is dispersed into a plurality of symbols interleaved over a plurality of burst data, it must be transmitted as such, which reads on the claimed "transmitting a message contained within a plurality of packet bursts at spaced time intervals". Suzuki fails to expressly disclose that first and second signal bursts are identical packets of a common message.

In a similar field of endeavor, Ohashi et al discloses that when a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the same data, and the same data is re-transmitted (see page 10, line 57 - page 11, line 2), which reads on the claimed first signal bursts and second signal bursts are identical packets of a common message and simultaneously, the receiving error count is increased by 1 and the receiving antenna is switched (see Ohashi et al page 11, lines 39-47). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Ohashi et al to include the above retransmission of the same data in order to prevent the loss of data.

Regarding claim 9, Suzuki discloses that one antennas 71a-m at a time is connected to the receiver circuitry 73-76 (see figure 10), and that the antennas may be selected in the previously-determined sequential order (see column 9, lines 21-24), which reads on the claimed "each of the plurality of the antennas is connected to a radio receiver at separate times relative to other antennas".

Regarding claim 11, Suzuki discloses a system where an encoded signal dispersed into a plurality of symbols interleaved over a plurality of burst data (see column 8, line 62 - column 9, line 12), which reads on the claimed "a message is spread across the plurality of packet bursts by space-time coding".

Regarding claim 13, Suzuki discloses a transmission/reception system where both a transmitter and a receiver are selectively coupled to a plurality of antennas (see figure 10, which reads on the claimed "communication system for coupling a transmitter and a receiver", and receives an encoded, signal dispersed into a plurality of symbols interleaved over a plurality of burst data (see column 8, line 62 - column 9, line 12), where each time the antenna switcher 72 receives burst data, the antenna switches the antenna under control of the communication control unit 78 (see column 9, lines 13-20 and figure 10), which reads on the claimed "adapted for receiving at least first and second signal bursts by first and second antennas respectively, and responding to the two signal bursts to communicate a singly unified message at the receiver", and "the first and second signal bursts are sequentially separated in time; the first and second antennas are sequentially enabled to communicate to storage at the receiver" where the output terminal 77 receiving the demodulated, deinterleaved, decoded data (See figure 10) reads on the claimed "at least one storage medium at the receiver". The processing of the reception signal includes deinterleave processing for deinterleaving the switched signal over a plurality of burst data to provide data in the original order (see column 9, lines 45-53), which reads on the claimed "enabling a representation of the unified message by responding to the first and second signal bursts". The system disclosed by

Suzuki is a TDMA system (see column 6, lines 12-19) so all transmissions and receptions are according to a predefined schedule as claimed. Suzuki fails to expressly disclose that first and second signal bursts are identical packets of a common message.

In a similar field of endeavor, Ohashi et al discloses that when a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the same data, and the same data is re-transmitted (see page 10, line 57 - page 11, line 2), which reads on the claimed "first and second signal bursts are identical packets of a common message".

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Ohashi et al to include the above retransmission of the same data in order to prevent the loss of data.

Regarding claim 15, Suzuki discloses that the plurality of symbols are part of the same signal (see column 8, line 62 - column 9, line 12), which reads on the claimed "the first and second signal bursts are each a part of a space-time coded message spread across two bursts". The processing of the reception signal includes deinterleave processing for deinterleaving the switched signal over a plurality of burst data to provide data in the original order (see column 9, lines 45-53), which reads on the claimed "a common message is derived from the sequential signal bursts received by the first and second antennas".

Regarding claim 16, Suzuki discloses that the reception signal is deinterleaved by deinterleaving circuit 75 so that it is reconverted into the original data (see column 9,

lines 31-35), which reads on the claimed "said enabling includes retaining the first and second signal bursts in said at least one storage medium and processing to deliver: the single unified message".

Regarding claim 17, Suzuki fails to expressly disclose selecting a message from one of the antennas.

In a similar field of endeavor, Ohashi et al discloses a system where, when an error is detected, the antenna is switched and the information is re-transmitted (see page 10, line 57 - page 11, line 2), which reads on the claimed "selecting a message from one of the antennas".

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Ohashi et al to include the above retransmission in order to minimize errors in the system.

Regarding claim 18, Suzuki discloses that the processing of the reception signal includes deinterleave processing for deinterleaving the switched signal over a plurality of burst data to provide data in the original order (see column 9, lines 45-53) and that the burst data are received on a plurality of antennas (see column 9, lines 18-20), which reads on the claimed "said deriving the common message includes selecting a message from one of the receiving antennas".

Regarding claim 21, Suzuki fails to expressly disclose sending a message to the transmitting end to cease further bursts.

In a similar field of endeavor, Ohashi et al discloses a system where, when an error occurs, a response indicating the error is sent to the transmitting end, requesting

re-transmission of the same data (see page 10, line 57 - page 11, line 2), and this process is continued until a re-transmission upper-limit is reached (see page 11, lines 5-14). If no error occurs, no message requesting re-transmission is sent.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Ohashi et al to include the above re-transmission in order to avoid the loss of data. The combination of Suzuki and Ohashi et al fails to disclose the sending of a message to cease re-transmissions. This difference is not critical to the invention however, and it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Suzuki and Ohashi et al to operate such that, instead of a message requesting retransmission being sent, a message ceasing retransmission is sent in order to automatically retransmit information until it is correctly received and save time and messaging.

Claims 2, 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Ohashi and Aaronson et al (US006363062B1).

Regarding claim 2, Suzuki and Ohashi fails to expressly disclose the use of a MAC protocol. In a similar field of endeavor, Aar0nson et al discloses a radio system where the MAC layer schedules communication bursts (see column 4, lines 22-63) taking into account factors such as propagation delay between the different nodes, queuing of data and synchronization of the time transmitting from multiple nodes (see column 3, lines 22-30).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki and Ohashi with Aaronson et al to include the above

MAC layer in order to use the advantages of a MAC protocol such as more efficient use of the spectrum at a given region as suggested by Aaronson et al (see column 3, line 66 - column 4, line 2).

Regarding claim 3, Suzuki and Ohashi fails to disclose that the RF switch control is a MAC processor.

In a similar field of endeavor, Aaronson et al discloses that the MAC algorithm should synchronize the time of transmitting from multiple nodes (see column 3, lines 22-29).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki and Ohashi with Aaronson et al to include the above MAC layer in order to use the advantages of a MAC protocol such as more efficient use of the spectrum at a given region as suggested by Aaronson et al (see column 3, line 66 - column 4, line 2).

Regarding claim 12, Suzuki discloses that transmission data is encoded by encoder 22 and interleaved by an interleaver 23 under control of a communication control unit 28 which controls transmission processing, which reads on the claimed "signal processing". Suzuki fails to expressly disclose the use of a protocol.

Aaronson et al discloses a radio system where the MAC layer schedules communication bursts (see column 4, lines 22-63) taking into account factors such as propagation delay between the different nodes, queuing of data and synchronization of the time transmitting from multiple nodes (see column 3, lines 22-30).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Aaronson et al to include the above MAC layer in order to use the advantages of a MAC protocol such as more efficient use of the spectrum at a given region as suggested by Aaronson et al (see column 3, line 66 - column 4, line 2).

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi et al in view of Khayrallah (XP-000889044).

Regarding claim 5, Ohashi discloses a diversity radio communication system where an antenna switch circuit 10 switches the first and second antennas 11 and 12 to connect them to the transmit/receive switch circuit 9 (see page 6, lines 1-8), which reads on the claimed invention that receives communications from a transceiver at a transmission station by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, and uses this configuration to receive data from first and second antennas. The received data is stored in the temporary memory 2 of the memory 3 (see page 6, lines 38-40), which reads on the claimed "recording the received bursts as soft information in a storage medium", a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the same data, and the same data is re-transmitted (see page 10, line 57 - page 11, line 2), which reads on the claimed first and second signal bursts are identical packets of a common message. Ohashi et al fails to expressly disclose the combining of information.

In a similar field of endeavor, Khayrallah discloses an improvement of time-diversity methods where a receiver cycles through groups of antennas and the

antennas within a group are combined by the receiver chains (see paragraph 3), which reads on the claimed "combining the soft information from the first and second bursts into a single message". Furthermore, Khayrallah discloses that antenna switching is preferably bur not necessarily done before a new slot is to be received, which reads on the claimed "enabling a first antenna to receive a first packet burst in accordance with said predefined schedule; enabling a second antenna to receive a second packet burst in accordance with said predefined schedule," wherein the system may be a TDMA system (see paragraph 5) so all transmissions and receptions are according to a predefined schedule.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Ohashi et al with Khayrallah to include the above combining of data in a TDMA system in order to improve the time-diversity methods as suggested by Khayrallah (see the title).

Regarding claim 6, the combination of Ohashi et al and Khayrallah discloses that

• when a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the same data, and the same data is re-transmitted (see Ohashi et al page 10, line 57 - page 11, line 2) and simultaneously, the receiving error count is increased by 1 and the receiving antenna is switched (see Ohashi et al page 11, lines 39-47), so in this case the same data would be received by

two different antennas as claimed. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi et al in view of Khayrallah as applied to claim 5 above, and further in view of Suzuki.

Regarding claim 7, the combination of Ohashi et al and Khayrallah fails to expressly disclose a message spread across packet bursts.

In a similar field of endeavor, Suzuki discloses a system that receives an encoded signal dispersed into a plurality of symbols interleaved over a plurality of burst data (see column 8, line 62 - column 9, line 12), which reads on the claimed "each packet burst contains a portion of a space-time coded message spread across the first and second packet bursts".

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the combination of Ohashi et al and Khayrallah with Suzuki to include the above signal dispersed into a plurality of symbols in order to use the advantages of burst signals such as the fact that transmission data are dispersed and thus can be transmitted from a plurality of antennas which improves the SIN of the reception signal as suggested by Suzuki (see column 8, lines 12-18 and figure 5).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Ohashi and Struhsaker et al (US 20020141355A1).

Regarding claim 10, Suzuki fails to expressly disclose that each packet burst includes a complete message. In a similar field of endeavor, Struhsaker et al discloses that a packet data unit may be a complete packet transmission or a fragment of a much larger message (see page 12, paragraph 159).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Struhsaker et al to include the above inclusion of a complete message in a packet burst in order to avoid wasting bandwidth with additional MAC headers as suggested by Struhsaker et al (see page 12, paragraph 159).

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Ohashi and Sampath et al (US 20030012308A1).

Regarding claim 19, Suzuki discloses a system where the number of transmit antennas corresponds to the number of receive antennas (see figure 12). Suzuki fails to disclose the notification of the number of antennas.

In a similar field of endeavor, Sampath et al discloses a system where a characteristic signal generator 450 generates a characteristic signal, based on one or more estimated system characteristics and/or deterministic system characteristics, such as number of transmit antennas, spatial configuration of the transmit antennas and transmit diversity mode (see page 4, paragraph 50).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Sampath et al to include the above notification in order to perform better channel estimation in a broad range of system environments which leads to advantages such as higher decoding error rates, lower information transmission rates and/or lower signal to noise ratios as suggested by Sampath et al (see page 1, paragraphs 10 and 11).

Regarding claim 20, Suzuki fails to expressly disclose the notification of supporting a protocol-assisted diversity operations. In a similar field of endeavor, Sam

path et al discloses a system where some slots provide header information for the frame, such as whether spatial multiplexing or transmit diversity is enabled for the frame (see page 3, paragraph 40), which reads on the claimed "a receiver notifying a transmitter that said receiver accepts and responds to protocol-assisted diversity operations".

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Suzuki with Sampath et al to include the above notification in order to perform better channel estimation in a broad range of system environments which leads to advantages such as higher decoding error rates, lower information transmission rates and/or lower signal to noise ratios as suggested by Sampath et al (see page 1, paragraphs 10 and 11).

Response to Arguments

Applicant's arguments filed in the 06-18-09 Remarks have been fully considered but they are not persuasive. Examiner has thoroughly reviewed applicant's arguments but firmly believes the cited reference to reasonably and properly meets the claimed limitations. Applicant's argument was that "Suzuki and Ohashi, alone or in any combination, fails to teach or to suggest the novel concept". Examiner respectfully disagrees with this argument. Regarding claims 1, 8, 10, 13, 19 and 20 Suzuki discloses a reception system where an amplifier 73, a demodulator 74, a de-interleave circuit 75 and a decoder 76 are coupled to one of a plurality of antennas 71a-m via switch 72s, which reads on the claimed "first and second antennas connected to RF processing

circuitry by an RF switch", where each time the antenna switcher 72 receives burst data, the antenna switches the antenna under control of the communication control unit 78 (see column 9, lines 13-20 and figure 10), which reads on the claimed "an RF switch control in communication with said RF switch, said RF switch control for switching between said first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts," wherein the system disclosed by Suzuki is a TDMA system (see column 6, lines 12-19) so all transmissions and receptions are according to a predefined schedule of a sequence of scheduled packet bursts. Only Suzuki does not expressly mention that first signal burst and second signal burst comprise identical packets of a common message. Ohashi discloses an improvement of reception through radio communication by a diversity method where a plurality of antennas are switched there between that a diversity radio communication system where an antenna switch circuit 10 switches the first and second antennas 11 and 12 to connect them to the transmit/receive switch circuit 9 (see page 6, lines 1-8), which reads on the claimed invention that receives communications from a transceiver at a transmission station by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, and uses this configuration to receive data from first and second antennas (same data transmitting four time). The received data is stored in the temporary memory 2 of the memory 3 (see page 6, lines 38-40). Thus the combination of Suzuki and Ohashi provides reason for one of ordinary skill in the art to retransmission of the same data in order to prevent the loss of data.

In response to Appellant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See (In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Further the applicant argues regarding claim 19 and 20 that as discussed above, cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts." Sampath et al discloses a system where a characteristic signal generator 450 generates a characteristic signal, based on one or more estimated system characteristics and/or deterministic system characteristics, such as number of transmit antennas, spatial configuration of the transmit antennas and transmit diversity mode (see page 4, paragraph 50). Sampath et al discloses a system where some slots provide header information for the frame, such as whether spatial multiplexing or transmit diversity is enabled for the frame (see page 3, paragraph 40), which reads on the claimed "a receiver notifying a transmitter that said receiver accepts and responds to protocol-assisted diversity operations".

Thus the rejection of the claims in view of Suzuki and Ohashi remain.

Regarding claims 2, 3 and 12 on pages 9-10, the same arguments and response applied to claim 1 apply to claims 2, 3 and 12. The applicant argues that the combination of Suzuki, Ohashi and Aaronson fails to teach an RF switch control for switching between a first and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts in combination with the fact that the RF switch control is a MAC processor that is synchronized with transmission of a base station. The examiner respectfully disagrees. As discussed above, Suzuki discloses individually receiving packet bursts at one of a plurality of antennas in accordance with a predefined schedule, wherein the predefined schedule is use to select one of the antennas for receiving each of the packet bursts (see response to claim 1 above). As discussed in the final rejection, Aaronson et al discloses that the MAC algorithm should synchronize the time of transmitting from multiple nodes (see column 3, lines 22-29).

Regarding claims 5-7 on pages 11-13, the applicant argues that the combination of Ohashi and Khayrallah fail to disclose switching between a first antenna and second antenna in response to a predefined schedule of a sequence of scheduled packet bursts. The examiner respectfully disagrees. Ohashi discloses a diversity radio communication system where an antenna switch circuit 10 switches the first and second antennas 11 and 12 to connect them to the transmit/receive switch circuit 9 (see page 6, lines 1-8), which reads on the claimed invention that receives communications from a transceiver at a transmission station by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, and uses this configuration to receive data from first and second antennas. The received data is

stored in the temporary memory 2 of the memory 3 (see page 6, lines 38-40), which reads on the claimed "recording the received bursts as soft information in a storage medium". Khayrallah discloses an improvement of time-diversity methods where a receiver cycles through groups of antennas and the antennas within a group are combined by the receiver chains (see paragraph 3), which reads on the claimed "combining the soft information from the first and second bursts into a single message". Furthermore, Khayrallah discloses that antenna switching is preferably bur not necessarily done before a new slot is to be received, which reads on the claimed "enabling a first antenna to receive a first packet burst in accordance with said predefined schedule; enabling a second antenna to receive a second packet burst in accordance with said predefined schedule," wherein the system may be a TDMA system (see paragraph 5) so all transmissions and receptions are according to a predefined schedule. The examiner contends that cycling through the antennas in a predetermined order in a TDMA environment reads on the claimed invention of, "receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule...enabling a first antenna to received first packet burst in accordance with said predefined schedule; enabling a second antenna to receive a second burst in accordance with said predefined schedule and wherein the scheduled communications are being formatted as multiple packet bursts.". When a detected error is uncorrectable, the terminal unit on the receiver side recognizes it as a receiving error and sends a response indicating the error to the transmitter side, requesting re-transmission of the same data, and the same data is re- transmitted (see

Ohashi et al page 10, line 57 - page 11, line 2) and simultaneously, the receiving error count is increased by 1 and the receiving antenna is switched (see Ohashi et al page 11, lines 39-47), so in this case the same data would be received by two different antennas as claimed.

Thus the rejection of the claims in view of Suzuki and Ohashi remain.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAWAR IQBAL whose telephone number is (571)272-7909. The examiner can normally be reached on 9 am to 6.30 pm Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GEORGE ENG can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

/K. I./
Examiner, Art Unit 2617